

# COMPARABLE VALUATION METHOD – A NEW APPROACH. CASE STUDY: A ROMANIAN FLEXOGRAPHIC PRINTING FIRM

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*This study presents the valuation scheme of a flexographic printing industry firm. The industry, the technology used and most importantly the firm being young ones, it is not possible to use the classical comparable valuation methods. The new approach in this matter is to use as benchmark financial ratios not those related to the price of the firm (as P/E, P/S, P/BV, P/CF, P/CAPEX), but those related to the structure of the income statement, financial and operating leverage using 13 Romanian and 6 Hungarian reference firms' data. Our main contribution to this line of research is to solve the problem of lack of reference data regarding the price, the benchmark companies not being listed on any stock exchange.*

*Keywords: mergers and acquisitions, corporate valuation, free cash flow, comparable valuation method, benchmarking*

*JEL codes: G31, G32, G34*

## **Introduction**

The purpose of the study is – from a theoretical point of view – to present how an acquisition target's value could be estimated with the help of a modified comparable valuation method the firm being part of a young industry, the classical financial ratios used in the comparable valuation methods not being available and – from a practical point of view – to estimate the theoretical price an acquirer might pay for our analyzed firm, a Romanian flexographic printing firm with a two year past. As stated by numerous financial analysts, valuing companies early in the life cycle is difficult, partly because of the absence of operating history and partly because most young firms do not make it through these early stages to success, this being the main reason for which we choose comparable valuation methods as a base for our valuation. We look for solutions that could offer us a way out from an apparent lack of benchmark data.

Damodaran (2009) enumerates a range of practices that come into play in the most common approach used to value young firms, which is the venture capital approach:

- Top line and bottom line, no detail:

It is difficult to estimate the details on cash flow and reinvestment for young companies. Consequently, many valuations of young companies focus on the top line (revenues) and the bottom line (earnings, and usually equity earnings), with little or no attention paid to either the intermediate items or the reinvestment requirements.

- Focus on the short term, rather than the long term:

The uncertainty we feel about the estimates that we make for young companies become even greater as we go further out in time. Many analysts use this as a rationale for cutting short the estimation period, using only three to five years of forecasts in the valuation.

- Mixing relative with intrinsic valuation:

To deal with the inability to estimate cash flows beyond short time periods, analysts who value young companies use relative valuation as a crutch. Thus, the value at the end of the forecast period is often estimated by applying an exit multiple to the expected revenues or earnings in that year and the value of that multiple is itself estimated by looking at what publicly traded companies in the business trade at right now.<sup>377</sup>

- Discount rate as the vehicle for all uncertainty:

The risks associated with investing in a young company include not only the traditional factors – earnings volatility and sensitivity to macroeconomic conditions, for example – but also the likelihood that the firm will not survive to make a run at commercial success. When valuing private businesses, analysts often hike up discount rates to reflect all of the concerns that they have about the firm, including the likelihood that the firm will not make it.

- Ad hoc and arbitrary adjustments for differences in equity claims:

Equity claims in young businesses can have different rights when it comes to cash flow and control and have varying degrees of illiquidity.

Our main goal is to value the company from an acquirer's point of view who, being in the same industry, can deal much easily with many of the difficulties enumerated reducing many of the risk factors and sources of uncertainty.<sup>378</sup>

### **Brief Review of the Empirical Literature on Benchmarking**

Comparable valuation methods consist in the comparison of valuation multiples and operating metrics for a target company to those of different firms in a peer group. Peers may be grouped based on different criteria, such as industry, company size, or growth, this being the base of the benchmarking process.

The popularity of the multiple valuation methods can be attributed to their relative simplicity compared to other company valuation methods like discounted cash flow techniques. As we will show, we think that the two methods can be combined to achieve our goal, especially in case of a company which's stocks is not traded on any stock exchange and is part of a young industry whose companies are not listed on stock exchanges.

Several studies and surveys demonstrate that practitioners frequently use financial ratios or multiples for the valuation of companies (see Graham and Harvey, 2001, Manigart et al., 2000, Lie and Lie, 2002, Liu et al., 2002, Courteau, 2003, Asquith et al., 2005, Roosenboom, 2007, Fidanza, 2008, Mînjînă, 2009). It also turns out to be surprisingly successful in comparative empirical studies by Kaplan and Ruback (1995) and Gilson et al. (2000).

In his study focusing on equity valuation using multiples, Fernandez's (2001) basic conclusion is that multiples almost always have a broad dispersion, which is why valuations performed using multiples may be highly debatable. However, Fernandez shows that multiples are useful in a second stage of any valuation: after performing the valuation using another method, a comparison with the multiples of comparable firms enables financial analysts to gauge the valuation performed and identify differences between the firm valued, and the firms it is compared with. These are the two approaches that we would like to merge in our valuation method: usage of financial ratios while utilizing another valuation method. Dittmann and Weiner (2006) investigate the which comparables selection method generates the most precise forecasts when valuing companies with the enterprise value to EBIT multiple, while Henschke and Homburg's study (2009) addresses the problem of differences between firms and the impact on valuations based on multiples. They investigate the extent to which industry-based multiples ignore additional firm-

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<sup>377</sup> This will be the base idea of our study, too.

<sup>378</sup> Damodaran, A., 2009. Valuing Young, Start-up and Growth Companies: Estimation Issues and Valuation Challenges

specific information and develop measures for identifying peer groups that are not comparable with the target firm. They find that differences between firms lead to systematic errors in the value estimates of different multiples but that these errors can be predicted very accurately by comparing the financial ratios of the target firm with the financial ratios of its peer group. They show that when adequately controlling for differences between firms, valuation accuracy is improved substantially and all considered value drivers perform almost equally well. Mînjină's paper (2009) examines the valuation performances of seven multiples on a sample of Bucharest Stock Exchange-listed firms. Mînjină finds that accuracy levels of multiple valuations are generally lower than those obtained using the same methods on more developed capital markets.

### Financial Analysis of the Target Company

Before analyzing the financial data concerning our firm, we have to choose the benchmark data that we are going to use as reference. We analyzed 13 Romanian and 6 Hungarian firms from the flexographic printing industry chosen partially taking into consideration the findings of Dittmann and Weiner (2006) and Henschke and Homburg (2009) being partly influenced by the available data.

*Table 1: Simplified Income Statement of the analyzed firm (RON)*

	2008	Jan.-July 2009
Operating revenue	2506587	2286148
Operating expenses	3369880	2750791
Suppliers	1646825	1592776
Employees	718482	488066
Services (including depreciation)	1004573	669949
Operating result	-863293	-464643
Financial revenue	37714	5616
Financial cost	641278	144825
Financial result	-603564	-139209
Income before income taxes	-1466857	-603852
Net income	-1466857	-603852

*Source: The firm's official financial statements*

The first striking observation is that the firm is in loss. In fact, one of the main problems in estimating a recently started business's price is typically the fact that most of these firms are not bringing any benefit to the equity owners in the first years of their existence. The gross margin is negative, while the benchmark data show positive values. The question that has to be answered is how we value a company in a similar situation.

The second also surprising fact that we can observe that not only the net income is negative, but also the operating result, the oddity of this situation being strengthened by the fact that we didn't find this situation at none of the benchmark firms we analyzed. In the next section our goal will be to solve this valuation problem.

*Tabel 2: Financial ratios of the analyzed firm and benchmark averages in Romania and Hungary*

Ratio	Hungary	Romania	Our Firm
Sales/Employees (RON)	350.000	280.000	105.000
Gross margin (%)	6,5%	0.5%	-26,35%
Operating margin (%)	11,5%	n.a.	-20%

An important measure of the efficiency of a firm is the sales/productive employees ratio. The problem is that while it is much easier to procure the total number of employees of a firm, it is rather difficult to do the same with the number of productive employees. But supposing that the proportion of the productive and non-productive employees does not vary substantially from one firm to another, we will calculate the ratio by dividing the total sales (operating revenue) by the total number of employees. The values of the ratios show large disparities especially between the analyzed firm and the benchmark ones: our firm's sales/employees ratio is one third of the benchmark data.

The problems that we can read out from the ratios calculated from the data found in the income statement plus a few technical data are:

- There is a 50% unused capacity in the firm – which explains the low value of sales/employee ratio and the negative value of the operating margin (the operating expenses including depreciation)
- Either the material costs are too high, or the firm's price calculation method is incorrect – confirmed by the negative value of the operating margin
- The benchmark data also show that the employee expenses divided by the total number of employees (average expense per employee) is much higher at our firm than in the case of the benchmark firms
- The lease contract proposes a 6 year payback period, although the investment's payback period is higher, which causes financing problems on medium run
- The benchmark data also show that the collection period at our firm is much higher

### **Methods of Optimization from the Acquirer's Point of View, Synergy Possibilities**

Resulting from the problems enumerated above, we cannot predict future cash flows without optimizing the data affected. Otherwise the firm would not be worth more than its equity which is negative by the time of the analysis – the only possibility would be to sell the data base and network of the clients of the firm – a small amount oppositely to the potential of the firm. We will make further calculations with the assumption that no enterprise would buy this firm to operate it as it operated before the acquisition. The optimization possibilities come from the benchmark data that we worked with also at the financial analysis of the target company - in order to make the most of this company from a financial point of view one should:

- Utilize to the maximum the capacity of the machines - the buyer should be in a lack of capacity (which would increase the Sales or Operating Revenues with 100%)
- Optimize the operating margin by introducing a new price calculation method and/or by reducing material costs
- Introducing a new performance-based wage calculation method
- Renegotiate the terms of the lease contract by prolonging the payback period or perform an equity infusion (the acquirer)
- Shorten the collection period by introducing some discipline through a more complex commercial credit system using a pre-defined discount system for early cash collection and establishing clear procedures and default interests for those who exceed the expiration of the commercial credit

We can also enumerate a few synergy possibilities for the buyer:

- Joint logistics
- Joint administrative personnel
- Better territorial coverage
- Better knowledge of the technology

- Better sales opportunities

All these factors lead to a better cost management and higher revenue.

### Calculation of the Free Cash Flow

In the course of the free cash flow (FCF) calculation we assumed that we can benefit from all of the optimization and synergy possibilities listed above and we assume that in the course of the next 6 years no substantial investment will be made. All the other maintenance costs are included in the operating expenses.

Table 3: FCF calculation

Indicator	2010	2011	2012	2013	2014	2015
Growth rate	56%	10%	7%	7%	5%	5%
Operating revenue	7406734	8110767	8678520	9286017	9750318	10237834
Operating expenses	7061682	7566360	8004684	8474815	8831479	9206813
Operating result	345051	544407	673836	811202	918839	1031020
Income tax without tax shield	0	0	0	129792	147014	164963
NOPLAT	345051	544407	673836	681409	771825	866057
Depreciation	689277	678272	667444	656788	646302	635983
Increase in net working capital	178200	165726	129729	138670	106315	111526
FCF	856128	1056953	1211550	1199527	1311812	1390515

Source: Authors' calculations

### Estimation of the Discount Rate

We use the weighted average cost of capital (WACC) as discount rate, with an optimized debt-equity ratio. To estimate the expected rate of return of the shareholders we use the capital asset pricing model (CAPM). For the change in the WACC caused by the change in leverage throughout the years, we either use Miles and Ezzell's method, or, if we also want to include the operating leverage change too, we can use the numerous levered-unlevered beta corrections found on the market (Modigliani and Miller, Harris and Pringle, Damodaran, Myers, practitioners). For the first year of the forecasted period:

CAPM:  $E(r_e)_{2010} = E(r_f) + \beta * [E(r_m) - E(r_f)] = 6,5\%^{379} + 1,24 * (13\% - 6,5\%) = 14,56\%$

WACC =  $r_e * E/V + r_D * (1 - T_c) * D/V = 14,56\% * 45\% + 10\%^{380} * (1 - 16\%) * 55\% = 11,172\%$

### Estimation of the Firm's Value – Results and Conclusion

Using the classical FCF derivation method we find that:

Table 3: FCF calculation

Indicator	2010	2011	2012	2013	2014	2015	2016
WACC	11,17%	11,30%	11,45%	11,70%	12,10%	12,40%	
Discounted FCF	770094	853229	875188	770544	741043	689569	
Terminal value							2453533
Firm value	7153198						
Debt value	4071000						
Addit.cap.requirement	716000						

<sup>379</sup> National Bank of Romania's policy rate, [www.bnro.ro](http://www.bnro.ro)

<sup>380</sup> 5,5% in Euro

(equity infusion)	
Equity value after the merger	2366198

*Source: Authors' calculations*

Knowing that no method will determine a single price for the target; the outcome of the analysis will be a range of values: [2 000 000 – 2 700 000]. This is the approximate interval the price will move in – we tend to consider the lower limit more realistic because all the optimized data might not be possible to pursue.

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